



ASSOCIATION OF  
ENERGY ENGINEERS

Bay Area Chapter

# NEWSLETTER

September 1999

## Dinner Meeting Information Tuesday, September 28<sup>th</sup>

### Field Trip to BART's Operation Control Center

Ever wonder how the Bay Area Rapid Transit system runs? Here's your chance for an inside look. We'll meet at the Lake Merritt BART station where a representative from their engineering group will show us around and answer your questions.

**Time:**

**6:00** Tour BART's "brain"  
**7:30** Dinner at Oasis  
Restaurant.

**Location:** We'll meet at the station agents booth - Lake Merritt BART Station.

**Cost:**

\$25.00 Members  
\$30.00 Non-Members  
\$15.00 Students

**Reservations:**

Call Mima Guilles or Leslie Kramer at (415) 434-0900 or fax (415) 956-6220 using the handy fax form to make reservations by noon Friday, September 24. You can also reserve on the web at the chapter web site at [www.aee-sf.org](http://www.aee-sf.org).

See the enclosed flyer for  
more info...

## PRESIDENT'S MESSAGE

### by Steve Kromer

It is an honor to have been asked to contribute this month's ex-president's message, especially considering that I was never the president of the Bay Area Chapter. In keeping with other past presidents' messages I've used this opportunity to tell the story of one engineer's path through the world of energy efficiency in the 1990s. I'll retell some stories from my nine years at Lawrence Berkeley Lab and reflect on why this is probably the most exciting time ever to be involved in energy engineering.

I joined the LBL In-House Energy Management (IHEM) Team in 1990. Back in those days LBL vied with Newcomb Anderson, UC Berkeley and Proven Alternatives for largest attendance at the monthly meetings and for providing speakers. The IHEM program was well-funded and we were able not just to implement energy efficiency but to do research on the best way to do retrofits. The results of our research were the subject of several of these meetings.

One of my first jobs was reviewing the plans for a lab-wide lighting retrofit. The lab had ~15,000 T-12 fluorescent fixtures with magnetic ballasts. Electronic ballasts were still an unproven technology, and had even led to 200% failure rates down the hill at the U.C. campus. The retrofit study I inherited called for hybrid ballasts (do they still exist?) T-10 AX lamps tandem-wired with reflectors for every fixture. Sound archaic? Fortunately, electronic ballast technology was making great strides, with the help of LBL researchers and better manufacturing of the solid-state components. We chose to use the new-fangled T-8 lamp and electronic ballast combination. After installing the first couple batches of ballasts we held our breaths, (we used some very low ballast factors .49, .54, .61) but I am happy to report that almost ten years later we have experienced a very low failure rate, (I can provide this later) And now, as you know, the T-12 to T-8 retrofit is now the heart of most energy efficiency projects. What I learned from this experience was that energy efficiency is not a menu driven enterprise. New technologies arrive constantly, creating opportunities for creative solutions.

After tinkering with lights and the EMCS, technology-driven projects, I was asked to delve into the more arcane world of energy contracting. LBL was chosen as the pilot site for a new government program called Shared Savings. The U.S. Department of Energy was testing performance contracting on government sites and LBL chose Building 62 as the test case. Given my background in installing energy metering systems for large utility programs I thought the task would be straightforward. I would collect tons of data on every circuit in the building and spend a few months analyzing it and calculating savings. And that's what we did. We installed and maintained a 64 channel data logger and over the course of the project spent \$50k of your tax dollars to figure out a simple fact, most of the data was irrelevant to the contract. Changes in occupancy and usage were out of the control of the contractor and hence he did not want to accept that risk. We negotiated a simple solution.

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## President's Message (continued)

### 1999 Board

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#### Interested in involvement?

**Contact:** Ed Spivey  
(925) 944-8929

We threw out the heavy metering approach and measured the energy performance of each system. For the lighting this was as easy as taking a single measurement at the 277 volt riser before and after the retrofit with all the lights on. Again, what I learned was that simple solutions to otherwise impenetrable problems were not that hard to come by, it just took some creativity.

While LBL had been working on the pilot shared savings project, the master minds back in D.C., passed legislation called the Energy Policy ACT (EPACT). EPACT allowed any federal agency to perform this magic of turning energy savings into infrastructure. The new program was called Energy Savings Performance Contracting and it had one small missing piece, a repeatable, verifiable way to measure the savings resulting from these contracts. Fresh from my experience with LBL's Shared Savings contract I was invited to move back to my hometown, D.C., to create M&V protocols.

I left the shelter of LBL for politics, DC style. While you might think that federal agencies have some control over their programs you will more likely find information-saturated individuals who were tasked with impossible goals by under-informed legislators. Fortunately the Federal Energy Management Program had one calm visage, Dean Devine. Dean was the resident philosopher/interpreter. He invited me into his office one day to have me explain the approach I intended to take to solve the savings measurement problem. (I didn't tell him that my ace in the hole was the newly formed ASHRAE committee that I was sure would do the job for me in six months or so.) His first question set the tone. "So you think you can measure savings eh?". I was struck dumb. Was he challenging my engineering capabilities, was it rhetoric, was he crazy? "Well, um, yes, I mean you're damn right I can measure savings", I blurted out. "Exactly how do you measure what's not there" was his retort. I paused, I squirmed, I started to describe random constructs that might plausibly pass for savings measurement schemes. But he wasn't buying it. I left the room in shock, wondering what this meant to my assignment, my career, the ESPC program. Was I on a fool's errand? Should I retreat in defeat? How would this affect a fragile multi-billion dollar enterprise? The fact was that Congress had already authorized a program worth billions of dollars and did so with the full assurance that savings aren't just measured, they're guaranteed!

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*Bay Area Chapter*

AEE Bay Area Chapter serves as a unique forum for the discussion of energy issues and concerns. AEE Bay Area Chapter provides common professional meeting ground for facility managers, design and specifying engineers, utility and vendor representatives and energy researchers to participate in vigorous peer-to-peer dialogue, learning and group discussion.

AEE Bay Area Chapter strives to provide quality professional development opportunities which build knowledge and skills through meetings, seminars and publications. Emphasis is placed on:

- Assessing the applicability of emerging technologies, and
- Improving the performance and reliability of current technologies.

Meetings are held on the fourth Tuesday of the month. All interested persons are welcome to attend, participate and join the Chapter. If you are interested in joining the AEE Bay Area Chapter, contact Ken Moore at (415) 460-0460.

## President's Message (continued)

Dean was right. You can't measure savings. But reasonable people can agree to certain engineering solutions that, when the participants agree to the inherent assumptions, allow adequate certainty that projects are successful. Measurement and Verification was born, and is still evolving. To this day I don't know if anyone who was involved in writing the legislation fully understands the solution we provided.

We are now on the eve of FY2K. The US Government, through the DOE, and various DOD contracts has approximately \$7 billion in contract authority. ESPC is an accepted alternative finance vehicle and we now have not one but 3 M&V protocols, each with several options for determining savings. We have supplanted the need for black-box savings measurement schemes with an underlying confidence in the technologies of energy efficiency and an acceptance of the fact that contracts require risk sharing and partnering. M&V is not the "answer" to the problem of "how much did I save?", it the structure by which two parties agree to share the risk of energy performance and operations. It is, simply, the creative application of common sense.

And what about the future? Deregulation is sweeping the country and new business models are arising to address what will almost certainly be the biggest explosion of creative energy solutions ever. Information technology is creating cheaper ways to collect and analyze energy information. That loud sucking sound you hear coming from Houston is one company's bet that luring creative talent is the best business model for success in the new energy markets. The term energy information engineer may soon be more than a joke on my business card.

Energy engineering and energy efficiency are often called a feel-good professions, and rightly so.

We're doing the right thing, and our profession is overflowing with talented, dedicated....creative individuals. The Bay Area is blessed with a high percentage of these folks. Whether it be energy or information technology, legislation, deregulation or global climate change you are working among the leaders in your field, at the most exciting time in its history. I feel lucky to be an energy engineer in the Bay Area, to be able to make a contribution. I just wish I was in town more often so I could go to some AEE meetings!



If you were a corporate member,  
you could have your card right here.  
*(and on the web site too)*

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## Career Opportunity

EMCOR Energy Services, a division of EMCOR Group, Inc. ([www.emcorgroup.com](http://www.emcorgroup.com)), the world's largest mechanical/electrical contractor, is rapidly growing. We are seeking design and analysis engineers at our San Francisco based subsidiary, Newcomb Anderson Associates, and in our Boston and Philadelphia offices. Performance contracting or practical energy project experience desired. For more information about our company and outstanding employment opportunities, please visit [www.newcombanderson.com](http://www.newcombanderson.com) or fax inquiries to 415/434-2321, attn: Recruiting. Full benefits, excellent work environment, equal opportunity employer.

## How can you get your message to all the energy geeks in the Bay Area?

Put it here! Target your message to the local energy engineering crowd. We welcome submissions such as employment opportunities, energy-related events, or any information of interest to members of the Bay Area AEE Chapter.

Email your brief announcement to: [webmaster@aee-sf.org](mailto:webmaster@aee-sf.org)

Do you know someone who might be interested in joining AEE Bay Area Chapter?



*Bay Area Chapter*

The benefits of joining include:

- Participating in exciting and informative programs
- Receiving a monthly newsletter containing information on meetings, events, and job openings
- Communicating with other energy professionals

For membership application:

**Contact Ken Moore**  
**(415) 460-0460**

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175 Filbert Street, Suite 205  
Oakland, CA 94607-2541